

1 VQE results Aer Estimator (No Shots)

(Full Hamiltonian)				Anharmonic Oscillator		$\Lambda = 4$	COYBLA Max 10K Iterations			
Ansatz	Tolerance	Converged runs	Mean iter	VQE min E.	Δ_{min}	VQE median E.	Δ_{median}	Exact	Time	
RA r1 rl	1e-01	100/100	42	-1.397e-01	2.5085e-02	6.8663e-02	2.3345e-01	-1.6478526069e-01	00h 00m 16s	
RA r1 rl	1e-02	100/100	166	-1.6428e-01	5.0822e-04	-1.6083e-01	3.9554e-03	-	00h 00m 53s	
RA r1 rl	1e-03	100/100	341	-1.6478e-01	5.8576e-06	-1.6474e-01	4.8128e-05	-	00h 02m 00s	
RA r1 rl	1e-04	99/100	556	-1.6479e-01	5.218e-08	-1.6478e-01	4.3586e-07	-	00h 03m 35s	
RA r1 rl	1e-05	99/100	830	-1.6479e-01	9.7492e-10	-1.6479e-01	4.5297e-09	-	00h 04m 22s	
RA r1 rl	1e-06	97/100	1257	-1.6479e-01	5.3531e-12	-1.6479e-01	5.0058e-11	-	00h 06m 32s	
RA r1 rl	1e-07	98/100	1167	-1.6479e-01	4.7518e-14	-1.6479e-01	4.2111e-13	-	00h 05m 26s	
RA r1 rl	1e-08	96/100	1364	-1.6479e-01	8.5487e-15	-1.6479e-01	6.3671e-14	-	00h 06m 11s	
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Table 1: AAA